

W

Notice of Allowability	Application No.	Applicant(s)	
	10/816,568	MAKEIG ET AL.	
	Examiner	Art Unit	
	Phuong Huynh	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. ☒ This communication is responsive to Amendment filed on May 10, 2006.
 - 2. ☒ The allowed claim(s) is/are 1,2,4-15 and 17-34.
 - 3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 - 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 - 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Allowable Subject Matter

1. Claims 1, 2, 4-15, and 17-34 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Kadambe (US Patent Application Publication No. 2003/0061035) discloses method for blind separation of an overcomplete set mixed signals, i.e. to recover the original source signals from observation of the samples of the signal at each sensor without prior knowledge of source signals. Specifically, Kadambe discloses that mixed signals from plurality of sensors are received over a period of time are transformed by means of Fourier transform operator, and are decomposed into separate signal components within one or more frequency bands, or sub-bands. Further, Kadambe discloses a means for determining of a frequency band within the sparse domain that contains the most information that can be used to determine lines of correlation to determine the number of signal sources is operated, i.e. to determine which frequency band provides the most information about the lines of correlation of the source signals from the spectrogram values [see Kadambe: Paragraphs [0021], [0022], [0026], [0078]-[0084], and [0095]-[0097]].

Lee et al. (hereinafter "Lee") (US Patent No. 6,424,960) discloses a computer implemented method and apparatus for processing data that includes mixed signals from multiple sources using an extended

Art Unit: 2857

infomax *Independent Component Analysis* to recover the independent sources, i.e. separate the independent sources observed by the sensors [see Lee: col. 1, lines 6-41; col. 4, lines 41-54; and col. 5, lines 34-43].

Regarding claims 1, 12, and 31, the combination as claimed wherein “determining a location of a signal source corresponding to the isolated signal components” is not disclosed, suggested, or rendered obvious by the prior art of record.

For at least the reasons listed above, claims 2, 4-11, 13-15, and 21-25 which are dependent upon claim 1; and claims 17-20, and 26-31, which are dependent upon claim 12 are also allowed.

Regarding claim 33, the prior art of record fails to disclose the claim limitations:

“selecting a second frequency band within the one or more frequency bands,”

“determining spatial and temporal characteristics of the signal components within the second frequency band,”

“isolating a subset of the signal components within the second frequency band, based on the spatial and temporal characteristics of the signal components, to determine isolated signal components,”

or “matching at least some of the isolated signal components in the first frequency band with at least some of the isolated signal components in the second frequency band” (emphasis added).

Regarding claim 34, the prior art of record fails to disclose the claim limitations:

Art Unit: 2857

"isolate a subset of the signal components within the second frequency band, based on the spatial and temporal characteristics of the biological signal components, to obtain isolated signal components,"

or "to match at least some of the isolated signal components in the first frequency band with at least some of the isolated signal components in the second frequency band" (emphasis added).

Conclusion

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh whose telephone number is 571-272-2718. The examiner can normally be reached on M-F: 8:30 AM - 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2857

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuong Huynh
Examiner
Art Unit 2857

PH
05/17/2006


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800